



TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division

Violent Crime Response Team Standard Operating Procedures

Latent Print Evidence

4. Latent Print Evidence

4.1 Scope

Examining items of evidence for the presence of latent print friction ridge evidence at crime scenes is one of the most common crime scene examinations. Latent prints are the reproduction of friction ridge skin made in oils or residues that are deposited on an item.

Friction ridge impressions are observed in four different forms:

1. Latent prints are the reproduction of friction ridge detail; they are generally invisible or barely visible to the naked eye and require some form of processing or enhancement.
2. Patent prints occur when the friction ridges are coated with a visible substance and then deposited on a surface. No further processing is typically needed to visualize the print. Additional processing may enhance the print.
3. Plastic prints occur when the friction ridges come into contact with a substance such as putty, in which a 3 dimensional impression of the friction ridge pattern can be left.
4. Inked or rolled fingerprints are taken as known standards for comparison with unknown impressions.

Generally, friction ridge detail can be found on two types of surfaces: porous and non-porous.

Porous

Any absorbent surface, such as uncoated paper or cardboard, is considered porous.

Porous items should be brought back to the Laboratory for processing, whenever possible.

Non-Porous

Surfaces, such as glass, metal, plastic, etc., are considered non-porous surfaces and can be processed at the scene at the discretion of the VCRT Member.

Any surface requiring advanced processing techniques, such as adhesive tapes, should be packaged and transported to the Laboratory for processing.



TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division

Violent Crime Response Team Standard Operating Procedures

Latent Print Evidence

The best way to avoid damaging friction ridge details on a non-porous surface is to avoid contact with the impression. When items must be picked up, handle the item as little as possible and only in areas least likely to contain the friction ridge impressions. It is still possible to damage the friction ridge impressions on the items through gloved contact. Take great care in handling and packaging these items to minimize contact.

4.1.1. Searching for Latent Friction Ridge Impressions

Perform a visual examination of surfaces and items of evidence for the presence of friction ridge impression detail. When searching for friction ridge impressions, a strong light source can greatly aid in detecting the presence of friction ridge impressions. Oblique lighting can help reveal friction ridge impressions. Other useful tools for detecting friction ridge impressions on surfaces include an alternate light source such as the Reflective Ultra Violet Imaging System (RUVIS). Also refer to VCRT 10.23 Alternate Light Sources.

4.1.2. Methods for Developing Latent Prints Include

Choosing the appropriate technique for developing latent prints is determined by a variety of factors, including, but not limited to, the following:

- The type of surface
- The composition of the friction ridge impression
- The location of the item bearing the latent or friction ridge detail
- The specific needs of another discipline or examination
- The environmental conditions at the scene

4.1.2.1. Dusting Latent Friction Ridge Impressions

Surfaces can be dusted with commercial fingerprint powders to enhance and visualize ridge detail on non-porous surfaces. Magnetic powders may also be used on non-metallic surfaces. Refer to VCRT 10.10 Latent Print Powder and Latent Lifts for the testing procedures.

4.1.2.2. Cyanoacrylate Fuming of Friction Ridge Impression

Friction ridge impressions on evidence surfaces can be exposed to cyanoacrylate ester fumes, which may enhance and stabilize ridge detail present on nonporous surfaces. Refer to VCRT 10.8 Cyanoacrylate Fuming for the testing procedure.

4.1.3. Enhancing Bloody Friction Ridge Impression Patterns



TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division

Violent Crime Response Team Standard Operating Procedures Latent Print Evidence

In some cases Amido Black can enhance a bloody impression.

Bloody evidence should be submitted to the laboratory for processing, whenever possible. Refer to VCRT 10.7 Amido Black (Water Base) for the procedure if attempted at the scene.

4.1.4. Documentation

All prints developed on surfaces should be documented by photography prior to any other means of collection (i.e., lifting, Amido Black). A scale and marker must be included in the photograph. Refer to VCRT 10.34 Comparison Photography for additional information.

4.1.5. Collection of Friction Ridge Impression Evidence

The evidence must be handled and packaged so as to protect the most fragile type of evidence related to the item.

Evidence with possible latent friction ridge impressions will be collected in a manner that protects the surfaces on which the impression might be located or has been observed. The items will be handled while wearing gloves to prevent contamination of the evidence with fingerprints or palm prints. Do not place any markings on unprocessed evidence. Mark the packaging only.

Latent friction ridge impressions developed by powders can be collected from the surface by the following:

- Tape Lifts refer to VCRT 10.10 Latent Print Powder and Latent Lifts for additional information
- Photography refer to VCRT 10.34 Comparison Photography for additional information
- Gel Lifters refer to VCRT 11.25 Gel Lifters
- Silicone Casting refer to VCRT 11.10 Silicone Casting for additional information

When using silicone casting material, or gel lifters, choose a color that contrasts with the color of the powder.

4.1.6. Packaging of Recovered Evidence

Evidence suspected to have latent friction ridge impressions should be packaged in a manner that restricts the movement of the collected item within the container.



TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division

Violent Crime Response Team Standard Operating Procedures

Latent Print Evidence

Porous items, such as papers, with friction ridge impressions can be packaged in an envelope, bag or box.

4.1.7. Elimination Fingerprints

When latent prints are found at a crime scene, consideration should be given to the possibility that the impressions could belong to someone with no involvement in the crime being investigated. Elimination fingerprints should be taken from members of the household, witnesses, officers, or anyone who may have touched something at the scene.